Welcome to the MACTE Fall Conference!
Please Take A Moment To Check Your Zoom Settings

✓ Is your microphone on Mute?
✓ Please type your questions into the Zoom Chat.
✓ Camera on, if you feel comfortable, we would love to see your smile!

Please Note: These presentations are being recorded. If you would prefer not to appear on camera, please turn off your camera.
From Oakland to Wakanda: Transforming Mathematics Classrooms to Become Equitable and Empowering Spaces for Black and Brown Students

MACTE 2020 Fall Conference
Equity and Access in Education

October 20, 2020
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Overview

- Acknowledgements
- Equity & Social Justice in Mathematics Education
- Visiting Wakanda
- Learning from Virshawn and the EML summer program
- Pedagogical Imagination
  - Colorblind? Neutral?
- 4 ideas and strategies for promoting Wakandan pedagogy
- Summary
- Question and Answer
Acknowledgements

• Land Acknowledgement
  • Osage Peoples

• Ancestral Acknowledgement
  • South Carolina and Central Texas
  • Marian Dingle @DingleTeach
Defining Equity In Mathematics Teaching

In your personal notebook or on a scratch piece of paper, write responses to the following prompts. You do not have to include your name.

• Write a definition of equity.
• Write a definition of equitable teaching.
• List and describe 2 things you have done in your teaching to teach math in equitable ways.
Now Let’s Slightly Shift Our Lens….

In the chat feature on Zoom or in your own personal notebook, write responses to the following prompts.

1. What are your professional responsibilities for attending to issues of equity as a classroom teacher/educator in teaching mathematics?

2. How do you know?

3. What, if any, accountability mechanisms are in place to measure compliance/effectiveness?
Professional Context And Connection To Standards: List

Equity and/ or Justice Position Statements
National Council of Teachers of Mathematics (NCTM)
TODOS
Benjamin Banneker
Association of Mathematics Teacher Educators (AMTE)
American Association of Colleges for Teacher Education (AACTE)
*Some state frameworks
**But what does this LOOK like in practice?
Re-visiting Ancestral Acknowledgements

My great grandfather: Streeter Masters
- First in his family to be born free (1880’s)

My grandfather: Julius Masters
- Born in 1915
- Got the right to vote at age 50

My dad: Henry Masters
- Got the right to vote the year AFTER graduating from high school
- Didn’t attend integrated schools until seminary

Me: Imani Masters Goffney
- First in my family to attend integrated schools for K-12
- First generation to have the right to vote at age 18

My daughters: Bria and Naima (still the *only*)
Now let’s visit Wakanda
What And Where Is Wakanda?

Wakanda is the primary context for one of the newer Marvel movies: Black Panther.

The fictional Kingdom of Wakanda is a small nation in East Africa.

It is the richest, most powerful and most technologically advanced nation on the planet.

Many years ago a massive meteorite made up of the alien element/ metal Vibranium crashed in Wakanda. It is the only place where Vibranium is found on Earth.
Wakanda

Key players in the movie:

- T’Chaka (former king, is killed)
- his brother Prince N’Jobu
- Queen Ramonda
- Zuri the friend of the king
- T’Challa- new king and current Black Panther
- Shuri T’Challa’s sister
- M’Baku (king of neighboring tribe)
- Killmonger (long lost cousin of T’Challa)
Black Panther Set Records At The Box Office!

• 11th highest grossing film of all time, 1.35 Billion (as of Sept. 2019)
• 4th highest grossing film in North America $700 million (Nov. 2019)
• Highest domestic film 2018 in US & Canada; 2nd highest world-wide
• First superhero film to be nominated for Best Picture by the Academy Awards and the Golden Globes
• 7 Academy Awards, 3 wins
• Highest grossing Marvel film ever
Wakanda: Representation Matters
Why Wakanda?

We are excited about this movie because we are tired of seeing our people portrayed as...

Drug Addicts, Violent, Confrontational, Stupid, Poor, Coon, Slaves, Prisoners, Ghetto.
Why Wakanda?

What can we learn from Wakanda to create classrooms that provide equity, access, power, and agency for all learners?

Wakanda is a place where humanity, integrity, family, culture, language and tradition are valued SIMULTANEOUSLY along side innovation, technology, mathematics, science, and engineering.
Why Wakanda?

- How is Vibranium used in Wakanda?
- Power and privilege in Wakanda
- Significant concern for oppressed people
- Travel without assimilating

What about here? What about in your local context? Today we will consider what we can learn from the context of Wakanda and Wakandans to re-imagine mathematics teaching and learning.
Shift To US Schools: A Core Challenge Of Teaching

Teaching complex mathematical knowledge and skill

Teaching all students

https://deborahloewenbergball.com
Hmm...what if we add a more specific lens...a Core Challenge Of Teaching

A core purpose (and challenge) for all mathematics teachers and teacher educators might be to define their work as learning to SEE and contribute to the development of the Brilliance of Black and Brown children

** What might this involve?
I want to express my sincere appreciation to Dr. Deborah Loewenberg Ball at the University of Michigan and Mr. Blake Noel for sharing this segment with me and the video.

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The Minicomputer

- Abstract mathematical context for work on number relationships, mathematical structure, arithmetic properties (e.g., distributive property), even and odd numbers
- Also a setting for developing skills of mathematical argument and analysis, as well as proof
- Novel and complex mathematical environment for children

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Meet Virshawn

10 years old, Black male
In fourth grade:
He was often sent out of the room, to the hall or the principal’s office
He was in trouble often
He wasn’t doing well in math
He was articulate and liked to write

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Seeing Virshawn

Virshawn between 11:19 – 11:25

What do you see of Virshawn?

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At 11:26, the teacher says, “You know what, Virshawn, I am going to need you to come up here closer where you can see and hear and won’t be distracted.”
Over the next minute, Virshawn is raising his hand to answer questions.

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At 11:27, the teacher says, “Virshawn, you get to come up and make a number because you are the closest person to the board.”

“You can have two checkers and you can put them wherever you want, and make a number, and then you can call on somebody.”
At 11:28, Virshawn Takes The Role Of The Teacher

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Virshawn, One Week Later

THE TWO-CHECKER PROBLEM

What numbers are possible to make on the Minicomputer with exactly two positive checkers?

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Adding A Negative Checker!

The children found that 7, 11, 13, 14, and 15 were impossible with exactly two checkers.

EXTENSION:
Can you make 7, 11, 13, 14, and 15 if you have a negative checker?
You must use both positive checkers and you can use one negative checker if it is useful.

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VIDEO: How Does This Day Relate To What Happened One Week Earlier?

I think the negative checker isflusome
What Is The Work Of Trusting Students To Learn And Holding High Expectations Of Them In Real Time In This Example?

- Trusting Virshawn to be mathematically engaged
- Making explicit positive mathematical roles that actively include and support children (e.g., “being the teacher”)
- Creating opportunities to “practice mathematics”
- Making available an opportunity to develop agency through “proving the impossible”
- Focusing on mathematics as a context for positive roles and identity

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What Skills Support Wakandan Pedagogical Imagining....

Deep understanding of the content (mathematics) (and curriculum, etc.)

- Mathematical fluency allows one to hear and see the mathematics in non-standard (non-colonized) ways and supports a broader interpretations of students’ mathematical ideas, solutions, wonderings, etc.

Skillful at seeing the brilliance of Black and Brown children (in their mathematical thinking, in their interactions with each other and the teacher, etc.)

- Assume that Black and Brown children are brilliant and that one’s job is to only identify nuances in that brilliance, to leverage individual brilliance for collective good, and to ensure that each student sees their own brilliance.
Let’s Go Into Our Pedagogical Imaginations

What do you think happens in Wakandan mathematics classrooms?

• What would the teacher be doing?
• What might the students be doing?
• What types of things might the teacher and students do together?
Wakandan Teachers Do Not Use A “Color Blind” Approach

There is no such thing as a color-blind approach: Neutrality doesn’t exist— one is either working on the side of the system of oppression or DELIBERATELY working against it; to interrupt structural oppression and systematic racism in each part of the schooling system for children.

We all have cultural identities
Students aren’t “neutral”, and they aren’t all white.
Many students of color are PROUD of their cultural identity; they shouldn’t have to hide it at school to be academically successful

**What does it mean to see a Black Girl as Magical?**
For Now….What Else Can You Try In Your Classrooms That Might Be Related To Wakandan Pedagogy?

Countering Dominant Narratives
Rehumanizing Mathematics
“Rough Draft Talk” in equitable ways
Strategic use of “exit tickets”
Using a planning tool
Countering the Dominant Narratives: Supporting Black Children to See Their Brilliance

The influences of the broader environments start early.

- Discipline disparities for Black students, boys, and students with disabilities are observed as early as pre-K.
- Black preschoolers 3.6 times more likely to be suspended than white children
- 19% of preschool population; 47% of suspensions

Aayan Diop
Instagram: @Alissa360Style
Rehumanizing Mathematics: 8 Dimensions

Dr. Rochelle Gutierrez shares 8 dimensions of rehumanizing mathematics:

1. Participation/ positioning
2. Cultures/ histories
3. Windows/mirrors
4. Living practice
5. Creation
6. Broadening mathematics
7. Body/ emotions
8. Ownership


<table>
<thead>
<tr>
<th>Principles</th>
<th>Practices</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Foster a culture supportive of intellectual risk taking.</td>
<td>Tag talk as rough drafts. Engage in nonevaluative sharing prior to critique.</td>
</tr>
<tr>
<td>2. Promote the belief that learning mathematics involves revising understanding over time.</td>
<td>Provide opportunities for students to revise their thinking.</td>
</tr>
<tr>
<td>3. Raise students’ statuses by expanding on what counts as a valuable contribution.</td>
<td>Strategically call on students with helpful in-progress ideas and position them as competent mathematics students. Explicitly identify instances of in-progress ideas that helped the class move forward in its understanding.</td>
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</table>

Cautious Points For Use Of Rough Draft Talk

Students of color should NOT be the only students who are in the “rough draft” stage of thinking; this will not lead to developing a positive math identity.

When leading group discussions in ways that recognize and use rough draft talk do not always sequence calling on students in ways that position students of color as “in progress” and other students as competent.

Deliberately integrate and value new strategies or cultural influences of students’ identities that may show up in their problem-solving processes and mathematical thinking; rough draft talk does not always have to be connected to “traditional” (colonized) ways of doing mathematics.
Norm Setting Strategies in Rough Draft Talk

Rights of Learners (Crystal Kalinec-Craig)
- Be confused; Make a mistake; say what makes sense to you; share unfinished thinking and not be judged; revise your thinking

Highlight Multiple Smartnesses (Smarter Together!)
- Contrasting with the only way to be smart is to get the correct answer quickly: list various smartnesses that are needed on the task
- No one person has all of the smartnesses, so you need a group to make progress

Habits and Routines
- Individual think time; balance between explaining your ideas and listening to others’ ideas; noticing and wondering; seeking connections and patterns; make visual representations; seek generalizations; justify your thinking
When introducing a task, explicitly name smartnesses that might be used as a way of helping students see that they all have something to contribute (other than getting the right answer quickly)

- “If you know anything about volume and surface area; if you can draw a model; if you can look for patterns; if you wonder about different strategies; if you can learn from different perspectives, etc.”

When eliciting volunteers say:
If I were to get started on this problem, here is one way I started…

When leading a class or group discussion, students respond to the following prompts:
- What do you notice?
- What do you appreciate?
- What do you wonder?
Strategy #3: Strategic Use of “Exit Tickets”

• Create a feedback loop
• Strategy of “member checking” and reducing bias or assumptions
• Exit Ticket: End of “class” check system….
• Always start with your purpose - What do you need to know?

Example: After a lesson on _____, I need to know ___
Don’t forget to ask questions that demonstrate levels of proficiency, not just mastery
Don’t forget to ask questions about process, learning, feelings, etc.
Consider using two types:
  Type 1: Mathematical content of the lesson or day’s work
  Type 2: General prompt about disposition toward mathematical work
Strategy #3: Strategic use of “Exit Tickets”: Culturally Relevant Teaching and Member Checking

What might be a strategy for checking to see if culturally relevant teaching was really culturally relevant?

- How can you strategically use “exit tickets” as an example of being culturally relevant?

Member Checking

- Teachers design things that they think are interesting and that they think are not offensive, but we need to know for sure.

Thanks to Mr. Charles Wilkes for helping me think through the ideas represented in this section of the talk.
Strategic Use Of “Exit Tickets”:
Culturally Relevant Teaching And Member Checking

• What do you think you did best today?
• What was hard for you about today’s work?
• What about today’s work do you want to know something more about?
• What was your favorite part of what we did today?
• What was the most interesting thing about our work today and why?
• Today we used the context of ______. Did you see yourself in the work we did today?

• Remember that in Wakanda, students not having to become someone else to be smart in math.
• What would you like to see more of? (structures, practices, etc.)

Thanks to Mr. Charles Wilkes for helping me think through the ideas represented in this section of the talk.
Tips: Strategic Use of “Exit Tickets” (4)

NOT a required grade

Consider the format:

- Math Notebooks (one section of an interactive notebook?)
- 3X5 index cards
  - Inexpensive, easy to use (flip through), easy to retrieve (looking at changes over time)
- Technology: Kahoot; See Saw, Nearpod Google Forms or Google Jamboard, Pear Deck

Frequency matters

Don’t do this just once, build it in as a part of the lesson
Strategy #4: Equitable Mathematics Teaching Sticky Note

Attending to equity and social justice NEVER seem to happen on accident. Therefore, one must deliberately PLAN for this work.

- What types of things should you attend to when planning lessons to promote equity and access (to the mathematics content and/or practices)?
- What types of things should you attend to empower students?
Strategy #4:
Equitable Mathematics Teaching Sticky Note

Dr. Goffney's Considerations for Equitable Teaching
Title/Objective: ____________________________
Key Math Vocabulary: _______________________

Mathematical Goals:
________________________________________

Mathematical Practices:
________________________________________

Problems to Pose: _________________________
Asking Questions: _________________________

Sentence Frames to Support Language:
B: ____________________________
I: ____________________________
A: ____________________________

Smartness Strategies: ______________________

Participation formats with segments & times:
Whole ___________ Small ________________
Partner ___________ Individual ___________

Tasks:
Multiple Entry Points Y or N
Multiple Solution Strategies Y or N

Representations: _______________________
Manipulatives: ______________________
Re-visiting Your Definitions Of Equity In Mathematics Teaching

On the index card on your table, write responses to the following prompts. You do not have to include your name.

• Write a definition of equity.
• Write a definition of equitable teaching.
• List and describe 2 things you have done in your teaching to teach math in equitable ways.

• *In what ways does your definition interrogate, critique, or challenge structural oppression and systemic racism in schools that intentionally or unintentionally disempower Black and Latinx or Indigenous students?
• Does your definition include components of re-humanizing mathematics?
• Does #blackgirlmagic or #blackboyjoy fit in your definitions or actions?
If We All Think Our Children Deserve Better—That Reimagining And Transforming Mathematics Classrooms By Using A Wakandan Lens Would Be Better For Our Children, What Might Your Role Be?

- Recognizing and challenging anti-black racism across our society in the many ways it shows up, particularly in our school systems
- Identifying structural oppression and systemic racism in the many ways it shows up in our schooling systems
- Taking personal responsibility for the curriculum we use including the tasks we select, the teaching practices we engage in, the classroom environment (face to face and virtually) and the way we advocate and VOTE as citizens in a democracy
“Sometimes…..” “…You Have To Encourage Yourself!”
Summary: Oakland to Wakanda

Teaching can be powerful, but we don’t leverage it well.

*Classrooms as “transformative/disruptive”* (Dr. Alexis Patterson, UC Davis School of Education)

Teaching can be a force for justice.
The work of justice lives inside the work of teaching.
You can do it. Our future depends on it 😊

#WakandaForever
Questions? Comments? Wonderings?

Q & A

P.S. Thank you

Chadwick Boseman

“When I stand before God at the end of my life, I would hope that I would not have a single bit of talent left, and could say, ‘I used everything you gave me.’”

- Chadwick Boseman
Thanks for coming!

For more information, contact:

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THANK YOU FOR JOINING US

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YOU WILL FIND THE LINK TO OUR SURVEY ON YOUR CONFERENCE AGENDA
Professional context and connection to standards: List

Equity Position Statements

Association of Mathematics Teacher Educators (AMTE): http://amte.net/position/equityinmathematics

American Association of Colleges for Teacher Education (AACTE): About AACTE: http://aacte.org/about-aacte

“Equity – Preparation programs are committed to preparing educators who have a deep belief that every child can learn and should be given equitable opportunities to learn.”
Professional context and connection to standards: NCTM

NCTM Equity Position Statements

Creating, supporting, and sustaining a culture of access and equity require being responsive to students' backgrounds, experiences, cultural perspectives, traditions, and knowledge when designing and implementing a mathematics program and assessing its effectiveness. Acknowledging and addressing factors that contribute to differential outcomes among groups of students are critical to ensuring that all students routinely have opportunities to experience high-quality mathematics instruction, learn challenging mathematics content, and receive the support necessary to be successful. Addressing equity and access includes both ensuring that all students attain mathematics proficiency and increasing the numbers of students from all racial, ethnic, linguistic, gender, and socioeconomic groups who attain the highest levels of mathematics achievement.
Professional context and connection to standards: AMTE

AMTE Equity Position Statements
AMTE defines equity as access to high quality learning experiences; inclusion for all learners, mathematics educators, and mathematics teacher educators; and respectful and fair engagement with others (university colleagues, preservice and inservice teachers, future teacher educators, and P-12 students).

This means actively working toward a more just and equitable mathematics education free of systemic forms of inequality based on race, class, language, culture, gender, age, sexual orientation, religion, and dis/ability. …

Mathematics teacher educators have the ethical and professional obligation to advocate for equity in all aspects of their professional work, and AMTE seeks to support its membership in this endeavor.